UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

WORD TO INFO INC,

            Plaintiff,

      v.

FACEBOOK INC.,

            Defendant.

Case No. 15-cv-03485-WHO

**CLAIM CONSTRUCTION ORDER**

## INTRODUCTION

Plaintiff Word to Info, Inc. ("WTI") brings two separate lawsuits – one against defendant Facebook Inc. ("Facebook") (Case No. 15-cv-03485-WHO) and the other against Google Inc. ("Google") (Case No. 15-cv-03486-WHO) – accusing both defendants of infringing the same seven patents, United States Patent Nos. (1) 5,715,468 ("the '468 patent"); (2) 6,138,087 ("the '087 patent"); (3) 6,609,091 ("the '091 patent"); (4) 7,349,840 ("the '840 patent"); (5) 7,873,509 ("the '509 patent"); (6) 8,326,603 ("the '603 patent"); and (7) 8,688,436 ("the '436 patent"). Each of the patents in suit relates to natural language processing. The parties have asked me to construe ten terms from the asserted claims. Based on the parties' briefing, the tutorial on June 10, 2016, and the arguments presented at the hearing on June 17, 2016, I construe the terms as set forth below.[1]

## BACKGROUND

The patents-in-suit relate to natural language processing. Each of the patents-in-suit was invented by Robert Budzinski, each shares the same specification, and each besides the '468 and '436 patents shares the same abstract.

The '468 patent (issued February 3, 1998) is titled "Memory System for Storing and

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[1] Defendants indicated in the parties' joint claim construction statement that they intended to assert that the terms "word sense number," "clause implying word sense number," and "lexically processing" are indefinite. Jnt. Claim Constr. Stmt. at 2-3 (Dkt. No. 96); Jnt. Claim Constr. Stmt. Ex. A at 1, 9, 16 (Dkt. No. 96-1). However, they do not argue indefiniteness in their claim construction briefing, and I do not address the issue here.

1    Retrieving Experience and Knowledge with Natural Language."

2         The '087 patent (issued October 24, 2000) is titled "Memory System for Storing and

3    Retrieving Experience and Knowledge with Natural Language Utilizing State Representation

4    Data, Word Sense Numbers, Function Codes and/or Directed Graphs."

5         The '091 patent (issued August 19, 2003) is titled "Memory System for Storing and

6    Retrieving Experience and Knowledge with Natural Language Utilizing State Representation

7    Data, Word Sense Numbers, Function Codes and/or Directed Graphs."

8         The '840 patent (issued March 25, 2008) is titled "Memory System for Storing and

9    Retrieving Experience and Knowledge with Natural Language Utilizing State Representation

10   Data, Word Sense Numbers, Function Codes, Directed Graphs, Context Memory, and/or Purpose

11   Relations."

12        The '509 patent (issued January 18, 2011) is titled "Memory System for Storing and

13   Retrieving Experience and Knowledge with Natural Language Utilizing State Representation

14   Data, Word Sense Numbers, Function Codes, Directed Graphs, Context Memory, and/or Purpose

15   Relations."

16        The '603 patent (issued December 4, 2012) is titled "Memory System for Storing and

17   Retrieving Experience and Knowledge with Natural Language Queries."

18        The '436 patent (issued April 1, 2014) is titled "Memory System for Storing and

19   Retrieving Experience and Knowledge by Utilizing Natural Language Responses."

20        Budzinski filed the first of the seven applications underlying the patents-in-suit on

21   September 30, 1994.  Opening Br. at 2 (Dkt. No. 101); Defs. Br. at 1 (Dkt. No. 103).[2]  During

22   prosecution of the '468 patent, the examiner initially rejected certain claims as unpatentable over

23   European Patent Application Publication No. 0180888 to Katayama ("Katayama") (Mead Decl.

24   Ex. A, Dkt. No. 103-2).  *See* '468 file at 38 (Webb Decl. Ex. 9, Dkt. No. 101-9).  In a response

25   dated June 25, 1996, Budzinski argued that his invention – including the invention's claimed

26   "word sense numbers" – was distinct from Katayama.  *See id.* at 38 ("Word sense numbers are a

27   _____

28   [2] All "Dkt. No." citations in this Order are to the docket in *WTI v. Facebook*, No. 15-cv-03485-WHO.

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1 │ novel, nonobvious invention not taught in Katayama.  A word sense number makes it possible to

2 │ have new capabilities compared to the case dictionary, function memory, and semantic analysis

3 │ means of Katayama."); *see also id.* at 38-65.  The examiner subsequently allowed the claims.  In

4 │ all subsequent applications for the patents-in-suit, Budzinski included a sentence in the abstract

5 │ stating, "A word sense number is an address to the meaning of a word."

6 │ During prosecution of the '509 and '603 patents, the examiner initially rejected certain

7 │ claims as unpatentable over United States Patent No. 7,383,169 to Vanderwende ("Vanderwende")

8 │ (Webb Decl. Ex. 13, Dkt. No. 101-13).  *See* '509 file at 4 (Webb Decl. Ex. 10, Dkt. No. 101-10);

9 │ '603 file at 13 (Webb Decl. Ex. 11, Dkt. No. 101-11).  In responses dated September 11, 2009 (for

10 │ the '509 patent) and March 2, 2012 (for the '603 patent), Budzinski argued that his invention was

11 │ distinct from Vanderwende, and the examiner subsequently allowed the claims.  *See* '509 file at 4-

12 │ 76; '603 file at 13-87.

**LEGAL STANDARD**

14 │ Claim construction is a matter of law.  *Markman v. Westview Instruments, Inc.*, 517 U.S.

15 │ 370, 379 (1996).  "The words of a claim are generally given their ordinary and customary meaning

16 │ as understood by a person of ordinary skill in the art when read in the context of the specification

17 │ and prosecution history."  *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed.

18 │ Cir. 2012).  "There are only two exceptions to this general rule: (1) when a patentee sets out a

19 │ definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a

20 │ claim term either in the specification or during prosecution."  *Id.*

21 │ A patentee acts as his or her own lexicographer when he or she "clearly set[s] forth a

22 │ definition of the disputed claim term other than its plain and ordinary meaning."  *Id.* (internal

23 │ quotation marks omitted); *accord Akamai Techs., Inc. v. Limelight Networks, Inc.*, 805 F.3d 1368,

24 │ 1375 (Fed. Cir. 2015).  That is, the patentee must "clearly express an intent to redefine the term."

25 │ *Thorner*, 669 F.3d at 1365 (internal quotation marks omitted).

26 │ The standard for when a patentee has disavowed the full scope of a claim term is "similarly

27 │ exacting."  *Id.* at 1366.  "Disavowal requires that the specification or prosecution history make

28 │ clear that the invention does not include a particular feature or is . . . limited to a particular form of

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the invention." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014)

(internal quotation marks omitted).  With respect to disavowal made during prosecution, it is only

a "clear and unmistakable disavowal [that] overcomes the heavy presumption that claim terms

carry their full ordinary and customary meaning." *Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713

F.3d 1090, 1095 (Fed. Cir. 2013) (internal quotation marks omitted).  "Where an applicant's

statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and

unmistakable." *3M Innovative Properties Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir.

2013); *accord Avid Tech., Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1045 (Fed. Cir. 2016).  The

Federal Circuit "ha[s] thus consistently rejected [prosecution history disclaimer arguments] based

on prosecution statements too vague or ambiguous to qualify as a disavowal of claim scope."

*Avid*, 812 F.3d at 1045 (internal quotation marks omitted).

On the other hand, the Federal Circuit has found prosecution history disclaimer in a variety

of circumstances:

> For example, we have held that disclaimer applies when the patentee makes statements such as "the present invention requires" or "the present invention is" or "all embodiments of the present invention are." We have also found disclaimer when the specification indicated that for "successful manufacture" a particular step was "required." *Andersen Corp. v. Fiber Composites, LLC,* 474 F.3d 1361, 1367 (Fed. Cir. 2007) ("Those statements are not descriptions of particular embodiments, but are characterizations directed to the invention as a whole."). We found disclaimer when the specification indicated that the invention operated by "pushing (as opposed to pulling) forces," and then characterized the "pushing forces" as "an important feature of the present invention." We found disclaimer when the patent repeatedly disparaged an embodiment as "antiquated," having "inherent inadequacies," and then detailed the "deficiencies that make it difficult" to use. *Chicago Bd. Options Exch., Inc. v. Int'l Sec. Exch., LLC,* 677 F.3d 1361, 1372 (Fed. Cir. 2012) ("[T]he specification goes well beyond expressing the patentee's preference and its repeated derogatory statements about [a particular embodiment] reasonably may be viewed as a disavowal."). Likewise, we found disclaimer limiting a claim element to a feature of the preferred embodiment when the specification described that feature as a "very important feature in an aspect of the present invention" and disparaged alternatives to that feature.

*Hill-Rom*, 755 F.3d at 1372 (some internal citations and alterations omitted).

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1          When supported by clear and unmistakable statements of disavowal, "the scope of a

2   surrender of subject matter during prosecution is [not] limited to what is absolutely necessary to

3   avoid a prior art reference." *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1361 (Fed. Cir. 2005).

4   The Federal Circuit has held "patentees to the scope of what they ultimately claim, and [has] not

5   allowed them to assert that claims should be interpreted as if they had surrendered only what they

6   had to." *Id.* at 1361-62.

7          Significantly for the purposes of the bulk of the claim construction disputes at issue here, a

8   claim term that lacks a "plain or established meaning to one of ordinary skill in the art . . .

9   ordinarily cannot be construed broader than the disclosure in the specification." *Indacon, Inc. v.*

10  *Facebook, Inc.*, No. 2015-1129, 2016 WL 3162043, at *3 (Fed. Cir. June 6, 2016); s*ee also Irdeto*

11  *Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) (holding that there

12  is no presumption of ordinary and customary meaning "where a disputed term lacks an accepted

13  meaning in the art," and that "absent such an accepted meaning, we construe a claim term only as

14  broadly as provided for by the patent itself").  In such circumstances, "[t]he duty . . . falls on the

15  patent applicant to provide a precise definition for the disputed term," *Irdeto*, 383 F.3d at 1300;

16  *see also J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1570 (Fed. Cir. 1997), and "a

17  court must resort to the remaining intrinsic evidence – the written description and the prosecution

18  history – to obtain the meaning of th[e] term," *Goldenberg v. Cytogen, Inc.*, 373 F.3d 1158, 1164

19  (Fed. Cir. 2004); *see also Honeywell Int'l Inc. v. Universal Avionics Sys. Corp.*, 488 F.3d 982, 991

20  (Fed. Cir. 2007) (construing the term "terrain floor boundary," which had "no ordinary meaning to

21  a skilled artisan," according to the particular description of the term in the specification); *Network*

22  *Commerce, Inc. v. Microsoft Corp.*, 422 F.3d 1353, 1359-61 (Fed. Cir. 2005) (construing the term

23  "download component," which had "no commonly understood meaning reflected in general

24  dictionaries or similar sources" and "[no] specialized meaning in the relevant art," to include the

25  particular attributes described in the specification).

26                                          **DISCUSSION**

27  **I.    UNDISPUTED TERMS**

28          The parties agree that "plausibility" means "[a] measurement of whether an interpretation

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1  is consistent in the context of the conversation with respect to grammar, semantics, experience,

2  and knowledge." Jnt. Claim Constr. Stmt. at 2.

3  **II.    DISPUTED TERMS NOT INVOLVING 35 U.S.C. § 112 ¶ 6**

4       **A.    "word sense number"**

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '087 patent, claim 1, 4, 17, 23<br><br>'091 patent, claim 1, 12<br><br>'840 patent, claim 1, 2, 3, 5, 15, 16<br><br>'509 patent, claim 9, 10, 16<br><br>'603 patent, claim 9, 10, 13, 14<br><br>'436 patent, claim 1, 7, 11, 14<br><br>'468 patent, claim 1, 8, 12, 16, 24, 31, 33 | An identifier for a word meaning, the identifier including an identification number. | An address to the meaning of a word, which contains attributes regarding the meaning and has meaning data that is (1) utilized to determine the intended meaning of a word usage, and (2) organized into relations to other word sense numbers that can be used for selecting a word sense number which has the intended meaning of a word contained in natural language.<br><br>For the following types of word sense numbers, the structure is as follows:<br><br>An adjective word sense number is composed of an identification number, a state value or value range, and an owner word sense number.<br><br>The word sense number of a concrete noun contains a word sense identifying number, a type number, a specificity number, and an experience number.<br><br>The word sense number of a state abstract noun contains an identification number, a type number, a specificity number, and an experience number.<br><br>A verb word sense number contains an | Defendants' construction, slightly modified:<br><br>An address to the meaning of a word, which ~~contains attributes regarding the meaning and~~ has meaning data that is (1) utilized to determine the intended meaning of a word usage, and (2) organized into relations to other word sense numbers ~~that can be used for selecting a word sense number which has the intended meaning of a word contained in natural language~~.<br><br>For the following types of word sense numbers, the structure is as follows:<br><br>An adjective word sense number is composed of an identification number, a state value or value range, and an owner word sense number.<br><br>The word sense number of a concrete noun contains a word sense identifying number, a type number, a specificity number, and an experience number.<br><br>The word sense number of a state abstract noun contains an identification number, a type number, a specificity number, and an experience number. |

| | | identification number which defines the verb. word sense number, and includes partial to complete word sense identification numbers of main sentence roles. | A verb word sense number contains an identification number which defines the verb. word sense number, and includes partial to complete word sense identification numbers of main sentence roles. |
|---|---|---|---|

| Example Claims | |
|---|---|
| **'603 patent, claim 9** | A method of processing natural language in an apparatus, which comprises steps<br><br>utilizing a natural language processor to provide a data base of natural language with associated <u>word sense numbers</u> and/or function codes in memory associated with said apparatus,<br><br>associating additional data with said <u>word sense numbers</u> and/or function codes associated with said data base of natural language in memory associated with said apparatus,<br><br>indexing said data base of natural language with respect to <u>word sense numbers</u> and/or function codes with said apparatus,<br><br>storing said index in memory associated with said apparatus,<br><br>providing electronically encoded data which is representative of natural language in memory associated with said apparatus,<br><br>providing a dictionary data base in memory associated with said apparatus wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated <u>word sense numbers</u>, and/or function codes,<br><br>lexically processing said electronically encoded data to access said dictionary data base with said apparatus,<br><br>providing a grammar specification in memory associated with said apparatus,<br><br>utilizing said natural language words which are associated with said electronically encoded data and said associated data which are from said dictionary data base entries with reference to said grammar specification to select <u>word sense numbers</u> and/or function codes with said apparatus,<br><br>utilizing said index to said data base of natural language to access <u>word sense numbers</u> and/or function codes with said associated additional data to match or partially match said selected <u>word sense numbers</u> and/or function codes associated with said natural language which is associated with said electronically encoded data with said apparatus. |
| **'436 patent, claim 1** | A method of processing natural language in an apparatus, which comprises steps:<br><br>providing natural language which is processed by said apparatus to provide electronically encoded data which is representative of said natural language,<br><br>providing a dictionary data base in memory associated with said apparatus |

| | |
|---|---|
| | wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated <u>word sense numbers</u> with associated state representation data, and/or function codes, |
| | lexically processing said electronically encoded data to access said dictionary data base with said apparatus, |
| | providing a natural language plausibility and expectedness processor in said apparatus, |
| | utilizing said natural language plausibility and expectedness processor to initiate accessing entries of said dictionary data base which are associated with words of said natural language. |
| '436 patent, claim 7 | A method of processing as defined in claim 1 which comprises steps:<br><br>providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of <u>word sense numbers</u> having associated state representation data, and/or function codes,<br><br>utilizing said context data base for processing natural language. |

The parties' dispute over the meaning of "word sense number" focuses on three issues, corresponding to the three parts of defendants' construction: (1) whether the term should be defined as "[a]n address to the meaning of a word;" (2) whether the term should be defined to require that the "meaning data" be "utilized" and "organized" in certain ways; and (3) whether the term should be defined to require certain structures for adjective, concrete noun, state abstract noun, and verb word sense numbers. *See* Opening Br. at 5-9; Defs. Br. at 4-9; Reply Br. at 2-7 (Dkt. No. 105).

### 1.    "address to the meaning of a word"

Defendants argue that "word sense number" should be construed to mean "address to the meaning of a word" because the term is explicitly defined in this way in the abstracts for each of the patents-in-suit except the '468 patent. Defs. Br. at 4-6; *see also, e.g.,* '087 patent at abstract ("A word sense number is an address to the meaning of a word."); '603 patent at abstract (same); '436 patent at abstract (same). WTI counters that the intrinsic record as a whole supports using "identifier for a word meaning" instead of "address to the meaning of a word." Opening Br. at 5-6. WTI also argues that use of the word "address" "invites confusion" because of its "well-known meaning . . . [i]n the field of computer technology" as "a specific location in computer memory." *Id.* at 6-7.

I agree with defendants. The parties do not dispute that "word sense number" has no

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ordinary meaning in the art.  *See* Defs. Br. at 4 (noting that "WTI does not attempt to show that 'word sense number' has an accepted ordinary meaning in the field"); *see also* Opening Br. at 5-9; Reply Br. at 2-7.  Accordingly, it was up to Budzinski to "provide a precise definition for the . . . term," *Irdeto*, 383 F.3d at 1300, which is exactly what he appears to have attempted to do in explicitly stating in the abstracts for all but one of patents-in-suit what a word sense number "is." *Cf. Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007) ("Moreover, the word 'is,' again a term used here in the specification, may signify that a patentee is serving as its own lexicographer."); *accord Abbott Labs. v. Andrx Pharm., Inc.*, 473 F.3d 1196, 1210 (Fed. Cir. 2007).  Indeed, Budzinski specifically amended the original abstract to include this sentence following the examiner's initial rejection of the '468 patent as unpatentable over Katayama.

WTI contends that a word sense number is better understood as an "identifier for a word meaning," but WTI fails to cite anything in the specification or prosecution history that provides meaningful support for this position.  *See* Opening Br. at 5-6; Reply Br. at 3.  Although the specification describes certain types of word sense numbers as containing "identification numbers," *see, e.g.,* '468 patent at 8:63-65 ("The word sense number of a state abstract noun contains an identification number."); *id.* at 9:67-10:02 ("A verb word sense number contains an identification number."), that is not the same as defining "word sense number" as "identifier for a word meaning."  And, although the specification uses the word "identifier" in various contexts, WTI fails to identify a single instance when the specification uses that word in connection with a description of word sense numbers.

Given the clear definitional language in the abstracts, and the absence of intrinsic evidence to support WTI's construction of "word sense number" as "identifier for a word meaning," WTI's concern that using the word "address" "invites confusion" is not persuasive.  "Under [Federal Circuit] precedent, the patentee's lexicography must govern the claim construction analysis." *Braintree Labs., Inc. v. Novel Labs., Inc.*, 749 F.3d 1349, 1356 (Fed. Cir. 2014).  A word sense

number is an "address to the meaning of a word."[3]

### 2. "meaning data that is (1) utilized to determine the intended meaning of a word usage, and (2) organized into relations to other word sense numbers that can be used for selecting a word sense number which has the intended meaning of a word contained in natural language"

Defendants also seek to define the term "word sense number" to require "meaning data that is (1) utilized to determine the intended meaning of a word usage, and (2) organized into relations to other word sense numbers that can be used for selecting a word sense number which has the intended meaning of a word contained in natural language." Defs. Br. at 6-7.

In support of this portion of their construction, defendants rely on statements made by Budzinski during prosecution. In distinguishing Vanderwende during prosecution of the '509 and '603 patents, Budzinski explained that

> [w]ord sense numbers are a novel, nonobvious invention not taught in Vanderwende. A word sense number, which is described below, has an associated state representation which makes it possible to have new capabilities compared to the organized text words . . . in Vanderwende . . . First, I will describe the features of word sense numbers and some of the new capabilities of the present invention that are made possible with word sense numbers, and I will compare word sense numbers and these capabilities with Vanderwende . . . *A word sense number has meaning data which is utilized to determine the intended meaning of a word usage. The meaning data of a word sense number is organized into relations to other word sense numbers, and these relations can be used for selecting a word sense number which has the intended meaning of a word contained in natural language.*

'509 file at 5-6 (emphasis added); '603 file at 14-15 (emphasis added).

Similarly, during prosecution of the '468 patent, Budzinski distinguished Katayama by stating,

> Word sense numbers are a novel, nonobvious invention not taught in Katayama . . . *The meaning data of a word sense number is organized into relations to other word sense numbers, and these relations can be used for selecting word sense numbers which have the intended definition sense of a word for a usage in text.*

'468 file at 38-39 (emphasis added). When the examiner rejected the claims of the '468 patent because of the indefiniteness of terms like "word sense number," Budzinski relied on this

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[3] At the hearing, WTI stated that it agreed with this portion of the Court's construction. Hearing Tr. at 6 (Dkt. No. 114).

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1    language in responding to the rejection. The examiner found that the claims were

2
        indefinite for failing to particularly point out and distinctly claim the
3       subject matter which applicant regards as the invention. The claims
        are replete with alternate expressions such as "natural language text
        word or said non-textual natural language equivalent" and "word
4       sense numbers or function word codes" which renders the claims
        vague and indefinite.

5    Mead Decl. Ex. C at WTI00003542-43 (Dkt. No. 103-4). Budzinski responded, in relevant part,

6    by explaining that "[w]ord sense numbers are described in the applicant's June 25, 1996 response

7    on page 38, line 17 to page 40, line 5." Mead Decl. Ex. D at WTI00004215 (Dkt. No 103-5). That

8    portion of Budzinski's June 25, 1996 response includes the language quoted above.

9            Budzinski's prosecution statements support defining the term "word sense number" to

10   require "meaning data that is (1) utilized to determine the intended meaning of a word usage, and

11   (2) organized into relations to other word sense numbers."[4] WTI contends that the statements

12   describe only "advantageous features" of the claimed invention as a whole as opposed to

13   "definitional limitations" of word sense numbers in particular. Reply Br. at 4-5. Similarly, WTI

14   argues that the statements are better understood as a description of "how the combination of word

15   sense numbers, state representation data, and other features of the invention are used." *Id.*

16   (emphasis omitted). These arguments ignore Budzinski's repeated use of definitional language

17   aimed specifically at word sense numbers. *See, e.g.,* '468 file at 39 ("The meaning data of a word

18   sense number is . . ."); *id.* at 45 ("[W]ord sense numbers have . . ."); '509 file at 5 ("Word sense

19   numbers are a novel, nonobvious invention . . ."); *id.* at 6 ("I will describe the features of word

20   sense numbers . . ."); *id.* ("A word sense number has . . ."). They also ignore Budzinski's explicit

21   use of his prosecution statements to define word sense numbers in responding to the examiner's

22   indefiniteness rejection. In light of these circumstances, and in particular given the absence of any

23   evidence that the term "word sense number" has a customary and ordinary meaning in the art,

24   Budzinski's prosecution statements are not reasonably understood except as explanations of the

25   meaning of the term.

26           On the other hand, I am not convinced that the phrase, "that can be used for selecting a

27

28   _____
     [4] At the hearing, WTI also agreed with this portion of the Court's construction. Hearing Tr. at 6.

1    word sense number which has the intended meaning of a word contained in natural language," is

2    properly added to the construction of "word sense number."  Although Budzinski's prosecution

3    statements plainly link word sense numbers to meaning data that is (1) "utilized to determine the

4    intended meaning of a word usage," and (2) "organized into relations to other word sense

5    numbers," his statements regarding how those relations "can be used" are less clear.  Defendants

6    offer no other basis for this portion of their construction.  Absent a more clear basis for the

7    portion, I do not find it appropriate at this time.

### 3.    Format Limitations

9    Defendants further argue that Budzinski defined certain types of word sense numbers to

10   require particular formats.  Defs. Br. at 7-9.  Specifically, defendants contend that Budzinski

11   provided the following formats for "adjective," "concrete noun," "state abstract noun," and "verb"

12   word sense numbers: (1) "An adjective word sense number is composed of an identification

13   number, a state value or value range, and an owner word sense number."  (2) "The word sense

14   number of a concrete noun contains a word sense identifying number, a type number, a specificity

15   number, and an experience number."  (3) "The word sense number of a state abstract noun

16   contains an identification number, a type number, a specificity number, and an experience

17   number."  (4) "A verb word sense number contains an identification number which defines the

18   verb word sense number, and includes partial to complete word sense identification numbers of

19   main sentence roles."  *Id.*

20   These format limitations are properly incorporated into the construction of "word sense

21   number."  Defendants point out that the formats are taken verbatim from the "Summary of the

22   Invention" section of the specification.  *See* '468 patent at 6:15-19 (adjective word sense

23   numbers); *id.* at 6:37-39 (concrete noun word sense numbers); *id.* at 8:63-67 (state abstract noun

24   word sense numbers); *id.* at 9:67-10:03 (verb word sense numbers).  During prosecution,

25   Budzinski repeatedly cited to these portions of the specification in describing word sense numbers.

26   *See* '468 file at 38-39 (noting where in the specification adjective, concrete noun, state abstract

27   noun, and verb word sense numbers are "summarized" and "described in detail"); '509 file at 6-8

28   (same); '603 file at 15-17 (same).  Further, in responding to the indefiniteness rejection during

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1   prosecution of the '468 patent and explaining word sense numbers to the examiner, Budzinski

2   directed the examiner to the pages of his June 25, 1996 response that cite to these same portions of

3   the specification.  *See* Mead Decl. Ex. C at WTI00003542-43 ("Word sense numbers are described

4   in the applicant's June 25, 1996 response on page 38, line 17 to page 40, line 5.").

5        WTI asserts that incorporation of the format limitations would limit word sense numbers to

6   particular implementations of the invention, but WTI cites nothing in the specification or

7   prosecution history that describes or implies the existence of alternative implementations of word

8   sense numbers or otherwise supports a broader understanding of the term.  *See* Opening Br. at 7-9;

9   Reply Br. at 5-7.  WTI does point out that claim 3 of the '509 patent specifically recites

10  "experience and knowledge" and "directed graphs," and that during prosecution Budzinski also

11  described verb word sense numbers as "hav[ing] associated data including experience and

12  knowledge which is stored in terms of directed graph paths of word sense numbers."  '509 file at

13  9.  WTI contends that this shows that when Budzinski wanted to incorporate specific data fields

14  into the meaning of "word sense number," he did not just reference them in the specification or

15  during prosecution – he specifically recited them in the claims.  Opening Br. at 9.  However, in

16  contrast with the language highlighted by defendants and discussed above, the single prosecution

17  statement highlighted by WTI concerns data that is "associated" with verb word sense numbers,

18  not the data fields that certain word sense numbers are "composed of" or "contain."  *See* '509 file

19  at 9.  Further, neither claim 3 of the '509 patent, nor claim 1 on which it depends, uses the term

20  "word sense number."  Both claims use only the term "clause implying word sense number,"

21  discussed below.

22        **B.     "clause implying word sense number"**

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|--------|--------------------|--------------------------|----------------------|
| '087 patent, claim 23 <br><br> '509 patent, claim 9, 10, 16 <br><br> '603 patent, claim 14 | A word sense number for a verb, adjective, or abstract noun that represents a clause. | A word sense number for a verb, adjective, or abstract noun that represents a clause, and has (1) an associated state representation which includes conditions and requirements which are met for the clause | WTI's construction. |

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| '468 patent, claim 12, 31<br><br>'840 patent, claim 15, 16 | | implying word sense to have stored relations, and thus be valid, (2) associated purpose relations which are organized by the concept, i.e. function, of the purpose relation and stored in entries of a purpose node, and (3) word sense numbers which have been selected utilizing the state representation data to have all relations of the clause to be stored. | |

| **Example Claims** | | | |
|---|---|---|---|
| **'840 patent, claim 15** | A method of processing natural language, which comprises steps<br><br>providing electronically encoded data which are representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated <u>clause implying word sense numbers</u> having associated state representation data,<br><br>lexically processing said electronically encoded data to access said dictionary data base,<br><br>providing a grammar specification,<br><br>providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of <u>clause implying word sense numbers</u> having associated state representation data,<br><br>utilizing one or more of said syntax usage data and said <u>clause implying word sense numbers</u> which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification and with reference to said context data base to select <u>clause implying word sense numbers</u> associated with said natural language words. |
| **'509 patent, claim 9** | A method of processing natural language in an apparatus, which comprises steps<br><br>providing in memory associated with said apparatus an experience and knowledge data base which is comprised of directed graphs comprised of nodes with associated <u>clause implying word sense numbers</u> organized into paths of said nodes such that said nodes have access conditions which determine zero or more next said nodes on zero or more said paths that are accessible,<br><br>utilizing a natural language processor to provide natural language with associated <u>clause implying word sense numbers</u> in memory associated with said apparatus,<br><br>purpose relation path identification processing with said apparatus to find zero or more said paths from said nodes associated with said <u>clause implying word sense numbers</u> associated with said natural language with reference to said experience |

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| | and knowledge data base such that said access conditions of said nodes on said found paths are met, |
| --- | --- |
| | providing criteria for selecting said found experience and knowledge paths in memory associated with said apparatus, |
| | utilizing said criteria to select one or more of said found paths with said apparatus. |
| **'509 patent, claim 10** | A method of processing as defined in claim 9, which comprises steps |
| | providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of <u>clause implying word sense numbers</u> having associated state representation data including associated experience and knowledge paths, |
| | selecting experience and knowledge paths associated with said <u>clause implying word sense numbers</u> associated with said natural language such that said experience and knowledge paths associated with said <u>clause implying word sense numbers</u> associated with said natural language have accessable [sic] paths to said experience and knowledge paths associated with said <u>clause implying word sense numbers</u> from said context data base entries. |

The parties do not dispute that "clause implying word sense number" lacks a customary and ordinary meaning in the art, or that it requires at least "a word sense number for a verb, adjective, or abstract noun that represents a clause." *See* Opening Br. at 10-11; Defs. Br. at 9-10; Reply Br. at 7. However, defendants contend that the term should be defined to also include three additional elements: "(1) an associated state representation which includes conditions and requirements which are met for the clause implying word sense to have stored relations, and thus be valid, (2) associated purpose relations which are organized by the concept, i.e. function, of the purpose relation and stored in entries of a purpose node, and (3) word sense numbers which have been selected utilizing the state representation data to have all relations of the clause to be stored." Defs. Br. at 9-10.

In support of their construction, defendants again rely on statements made by Budzinski during prosecution of the '509 patent. Defs. Br. at 9-10. They cite the following passage to support the first element of their construction:

> ***The clause implying word sense numbers associated with natural language of the present invention have an associated state representation which includes conditions and requirements which are met for the clause implying word sense to have stored relations, and thus be valid.*** The present invention has a process that selects clause implying word sense numbers to have such stored relations, and thus be valid. In contrast for Vanderwende, a sense number is a numbered definition of an online dictionary . . . which is

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appended to a text word.

'509 file at 16 (emphasis added). They cite the following passage to support the second element:

> In Vanderwende, purpose is only used in the sense of goal or intention . . . ***A clause implying word sense [number] has associated purpose relations which are organized by the concept, i.e. function, of the purpose relation, and these purpose relations are stored in entries of a purpose node.***

*Id.* at 12 (emphasis added). And they cite the following passage to support the third element:

> ***The clause implying word sense numbers associated with natural language have word sense numbers which have been selected utilizing the state representation data to have all relations of the clause to be stored*** . . . In contrast for Vanderwende, a sense number is a numbered definition of an online dictionary . . . which is appended to a text word

*Id.* at 39-40 (emphasis added).

For its construction, WTI relies on the following portion of the specification, which

Budzinski identified during prosecution as describing cause implying word sense numbers:

> Clauses are represented by word sense numbers of verbs, adjectives, or abstract nouns in Experience and Knowledge Memory 150. Verb word sense numbers are directly convertible into natural language clauses. A characterizing clause associated with a clausal abstract noun is also directly convertible into a natural language clause. Clauses of adjectives are realized with the owner of the adjective as a subject with the adjective as a subject complement such as: "John is sick." State abstract nouns are expressed as the owner of the state abstract noun, a form of "to have" with a "to possess" word sense and the state abstract noun such as: "John has good health." Nouns and relations between nouns can have associated clauses which belong to purpose paths in Memory 150. Thus, all types of state representation words can have related experience and knowledge in Memory 150.

'468 patent at 13:43-57; *see also* '468 file at 37 ("I do not mean that a clause implies a word sense number in these claims. Rather, I mean that a word sense number implies a clause, i.e., a clause can be formed with the data associated with the word sense number. Clause implying word sense numbers are described in the specification on page 23, lines 4-16[5]); '603 file at 18 (noting where in the specification clause implying word sense numbers are summarized).

Before the hearing, I was tentatively inclined to adopt defendants' construction. *See* Dkt.

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[5] The citation to "page 23, lines 4-16" corresponds to the '468 patent at 13:43-57. *See, e.g.,* Opening Br. at 10 (noting same).

No. 111 (Tentative Rulings re June 17, 2016 Claim Construction Hearing).  On further consideration, however, I find that Budzinski's prosecution statements do not provide a sufficient basis for inserting the additional elements proposed by defendants.  Those statements lack the unambiguously definitional nature of those regarding, e.g., the meaning of "word sense number," and defendants identify nothing else in the prosecution history or specification that supports their construction.  Meanwhile, WTI's construction is supported by both the specification and Budzinski's citation to the specification during prosecution.  *See* '468 patent at 13:43-57; '468 file at 37.  Indeed, defendants do not dispute that WTI's construction accurately reflects the specification passage cited by Budzinski – defendants' only complaint is that WTI's construction is incomplete.  Because I find that defendants' construction would unduly limit and complicate the meaning of "clause implying word sense number," I adopt WTI's construction as the Court's.

### C.    "state representation data"

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '087 patent, claims 1, 4, 17<br><br>'091 patent, claims 1, 12<br><br>'840 patent, claims 1, 3, 15, 16<br><br>'509 patent, claims 10, 16<br><br>'436 patent, claims 1, 7, 11, 14<br><br>'468 patent, claims 1, 33 | Meaning data composed of states, their values, and their relations, associated with word sense numbers. | Meaning data composed of states, their values, and their relations, associated with word sense numbers that includes requirements and access conditions which are utilized for selecting a word sense number which has the intended meaning of a word contained in the natural language. | WTI's construction. |

| **Example Claims** |
|---|

| | |
|---|---|
| **'087 patent, claim 1** | A method of processing natural language, which comprises steps |
| | providing electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated <u>state representation data,</u> |
| | lexically processing said electronically encoded data to access said dictionary data base, |
| | utilizing said syntax usage data and said word sense numbers which are from entries of said dictionary data base and which are associated with words of said natural language to access said <u>state representation data</u>. |
| **'087 patent, claim 4** | A method of processing as defined in claim 1, which comprises steps |
| | providing a relation between two or more said word sense numbers, |
| | accessing said <u>state representation data</u> of said word sense number having said relation. |
| **'509 patent, claim 10** | 10. A method of processing as defined in claim 9, which comprises steps |
| | providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of clause implying word sense numbers having associated <u>state representation data</u> including associated experience and knowledge paths, |
| | selecting experience and knowledge paths associated with said clause implying word sense numbers associated with said natural language such that said experience and knowledge paths associated with said clause implying word sense numbers associated with said natural language have accessable paths to said experience and knowledge paths associated with said clause implying word sense numbers from said context data base entries |
| | 9. A method of processing natural language in an apparatus, which comprises steps |
| | providing in memory associated with said apparatus an experience and knowledge data base which is comprised of directed graphs comprised of nodes with associated clause implying word sense numbers organized into paths of said nodes such that said nodes have access conditions which determine zero or more next said nodes on zero or more said paths that are accessible, |
| | utilizing a natural language processor to provide natural language with associated clause implying word sense numbers in memory associated with said apparatus, |
| | purpose relation path identification processing with said apparatus to find zero or more said paths from said nodes associated with said clause implying word sense numbers associated with said natural language with reference to said experience and knowledge data base such that said access conditions of said nodes on said found paths are met, |
| | providing criteria for selecting said found experience and knowledge paths in memory associated with said apparatus, |

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utilizing said criteria to select one or more of said found paths with said
apparatus.

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3        The parties do not dispute that "state representation data" has a meaning unique to the

4    patents-in-suit and that the meaning of the term should be limited at least to "meaning data

5    composed of states, their values, and their relations, associated with word sense numbers." *See*

6    Opening Br. at 11-12; Defs. Br. at 11; Reply Br. at 8.  However, defendants contend that the

7    "meaning data" in this construction must also include "requirements and access conditions which

8    are utilized for selecting a word sense number which has the intended meaning of a word

9    contained in the natural language." Defs. Br. at 11.  In support of this construction, defendants

10   rely on Budzinski's repeated explanation during prosecution that

11               The state representation data associated with word sense
             numbers *includes requirements and access conditions*
12           *which are utilized for selecting a word sense number which*
             *has the intended meaning of a word contained in natural*
13           *language.*

14   '509 file at 30, 34, 50, 54, 73 (emphasis added).  According to defendants, WTI is "bound by these

     statements."  Defs. Br. at 11.

15       WTI responds that its construction aligns with the specification's description of the

16   invention as "storing all that is known for the definition and all that is known to be related to the

17   definition by realizing the definition with a state representation which is in terms of states, their

18   values, and/or their relations."  '468 patent at 3:60-63; *see also* Opening Br. at 11-12.  WTI also

19   argues that defendants' construction "adds complexity without adding clarity" and amounts to "a

20   distinction without a difference, as defendants have not shown how their [construction] materially

21   alters the scope of the claims."  Reply Br. at 8; *see also* Opening Br. at 12 (arguing same).

22       I agree with WTI's construction.  Defendants do not dispute that this construction is

23   supported by the specification, and as WTI points out, defendants offer no explanation of how,

24   practically speaking, their construction would materially alter the scope of the asserted claims.

25   Given the support for WTI's construction in the specification, and the absence of evidence that

26   Budzinski's prosecution statements could be read as a disavowal of actual claim scope with

27   respect to the term "state representation data," I cannot say at this juncture that those statements

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1  are an appropriate basis for further limiting the meaning of the term.

2  **D.    "grammar specification"**

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '091 patent, claims 1, 12<br><br>'840 patent, claims 1, 15<br><br>'509 patent, claim 16<br><br>'603 patent, claim 9<br><br>'468 patent, claim 1, 33 | Specification of rules defining a language's syntactic structure. | Specification of the rules defining a natural language's syntactic structure that must be used to parse incoming natural language and form natural language output, represent natural language, and select word senses for natural language words. | WTI's construction. |

| Example Claims | |
|---|---|
| **'091 patent, claim 1** | A method of processing natural language, which comprises steps<br>providing electronically encoded data which is representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, and/or function codes,<br><br>lexically processing said electronically encoded data to access said dictionary data base,<br><br>providing a grammar specification,<br><br>providing a data base of requirements such that said requirements must be met by said associated state representation data of said word sense numbers for said word sense numbers to be selected,<br><br>utilizing said syntax usage data which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification to select word sense numbers associated with said natural language words such that said associated state representation data of said associated word sense numbers meet said requirements for selecting said associated word sense numbers. |
| **'840 patent, claim 15** | A method of processing natural language, which comprises steps<br><br>providing electronically encoded data which are representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, |

| | associated clause implying word sense numbers having associated state representation data, |
| --- | --- |
| | lexically processing said electronically encoded data to access said dictionary data base, |
| | providing a <u>grammar specification</u>, |
| | providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of clause implying word sense numbers having associated state representation data, |
| | utilizing one or more of said syntax usage data and said clause implying word sense numbers which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said <u>grammar specification</u> and with reference to said context data base to select clause implying word sense numbers associated with said natural language words. |
| **'468 patent, claim 1** | A method of processing natural language, which comprises steps |
| | providing electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data and/or function codes, |
| | lexically processing said electronically encoded data to access said dictionary data base, |
| | providing a <u>grammar specification</u>, |
| | utilizing said syntax usage data which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said <u>grammar specification</u> to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage. |

The parties agree that a grammar specification is a "[s]pecification of rules defining a language's syntactic structure." *See* Opening Br. at 12-13; Defs. Br. at 12-14; Reply Br. at 8-9. Defendants' construction includes two additional requirements. First, it specifies that the grammar specification is limited to natural languages. Defs. Br. at 12-13. Second, it specifies that the grammar specification is "used to parse incoming natural language and form natural language output, represent natural language, and select word senses for natural language words." *Id.*

I agree with WTI's construction. With respect to specifying natural languages, defendants do not offer any evidence to dispute WTI's assertion that a person of ordinary skill in the art "would understand that every language – natural or artificial – has a grammar which defines the

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1    language's structure."  Opening Br. at 13.  Defendants contend that the meaning of "grammar

2    specification" is nevertheless appropriately limited to natural languages because claim 1 of the

3    '468 patent repeatedly uses the term "natural language."  *See* Defs. Br. at 12 ("The 'grammar

4    specification' in this claim must be rules defining natural language because that is what is being

5    processed as well as being used to produce a 'grammatical parse.'").  But this point merely

6    highlights that incorporating a natural language limitation into the meaning of "grammar

7    specification" would be redundant; claim 1 of the '468 patent, as well as all of the other asserted

8    claims in which the term "grammar specification" appears, already recite "natural language" and,

9    presumably, are thus limited in this way.  *See* Reply Br. at 9 (noting that an instrumentality that

10   "does not involve natural language as recited in th[e] limitations is already excluded from the

11   scope of the invention").  The various portions of the specification cited by defendants also fail to

12   establish that the scope of grammar specification should be limited to natural languages.  *See* Defs.

13   Br. at 12-13.  For example, although the specification uses the phrase "natural language" in

14   distinguishing a prior art reference, the specification plainly distinguishes that reference on

15   grounds other than the use of a natural language grammar – according to the specification, the

16   reference itself discloses use of a natural language grammar.  *See* '468 patent at 2:51-60 (noting

17   that the reference "discloses a thorough description of English grammar").

18          With respect to the functional limitation that defendants seek to insert, defendants cite to

19   the specification's distinction of a prior art reference on the ground that the reference's "grammar

20   description does not include a method for representing natural language nor does it include a

21   method for selecting word senses of natural language words."  '468 patent at 2:57-60.  Defendants

22   also cite to similar statements elsewhere in the specification and in the prosecution history.  Defs.

23   Br. at 13-14.  However, the statements are largely directed at how a grammar specification can be

24   used as opposed to what a grammar specification is.  In line with this distinction, several of the

25   asserted claims already recite the functional limitations that defendants seek to squeeze into the

26   term "grammar specification."  For example, the function of parsing incoming natural language is

27   recited in claim 1 of the '468 patent ("utilizing said syntax usage data . . . to produce output data

28   representative of a grammatical parse of said natural language"); the function of forming natural

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language output is recited in claim 33 of the '468 patent ("utilizing said syntax usage data and said natural language words . . . to generate outgoing natural language"); and the function of selecting word sense numbers for natural language words is recited in claim 1 of the '091 patent ("utilizing said syntax usage data . . . to select word sense numbers associated with natural language words").

### E.    "lexically processing"

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '087 patent, claim 1, 17<br><br>'091 patent, claim 1, 12<br><br>'840 patent, claim 1, 15<br><br>'603 patent, claim 9<br><br>'436 patent, claim 1, 11<br><br>'468 patent, claim 1 | Accessing syntax usage data, associated word sense numbers, and/or function codes of a word in a dictionary data base. | (1) Processing each word by accessing syntax usage data, associated word sense numbers, and/or function codes of the word in a dictionary data base.<br><br>OR<br><br>(2) Processing each word by accessing in a dictionary data base the syntax usage data for each word, the associated word sense numbers for each word that is a meaning word, and the function codes for each word that is a function word. | Defendants' first construction:<br><br>Processing each word by accessing syntax usage data, associated word sense numbers, and/or function codes of the word in a dictionary data base. |

| Example Claims | |
|---|---|
| '468 patent, claim 1 | A method of processing natural language, which comprises steps<br>providing electronically encoded data which is representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data and/or function codes,<br><br><u>lexically processing</u> said electronically encoded data to access said dictionary data base,<br><br>providing a grammar specification,<br><br>utilizing said syntax usage data which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage. |
| '087 patent, | A method of processing natural language, which comprises steps |

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| claim 1 | |
|---|---|
| | providing electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, <u>lexically processing</u> said electronically encoded data to access said dictionary data base, |
| | utilizing said syntax usage data and said word sense numbers which are from entries of said dictionary data base and which are associated with words of said natural language to access said state representation data. |
| '087 patent, claim 17 | A method of processing natural language, which comprises steps |
| | providing electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, and/or function codes, |
| | <u>lexically processing</u> said electronically encoded data to access said dictionary data base, |
| | utilizing said syntax usage data and said word sense numbers and/or said function codes which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said associated state representation data to select word sense numbers and/or function codes for words of said natural language. |

The parties' dispute over the meaning of "lexically processing" centers on whether lexically processing requires the processing of each word in a natural language phrase (or, as WTI puts it, whether "every data entity" in the lexically processing step "must correspond to exactly one textual word of incoming natural language"). *See* Opening Br. at 16-17; Defs. Br. at 17-19; Reply Br. at 11-12.

WTI defends its construction – which it contends does not require the processing of each word – on the grounds that it is taken verbatim from Budzinksi's statements during prosecution, and that the specification indicates that the claimed invention may lexically process whole phrases at a time. Opening Br. at 16-17; *see also* '603 file at 33, 62, 82 ("In the present invention, lexical processing accesses syntax usage data, associated word sense numbers, and/or function codes of a word in [a] dictionary data base of the present invention.").

Defendants respond that "[t]he literature in the field of natural language processing shows

1       that lexical processing operates on the individual word level," and that "[t]he explanations

2       throughout the specification always contemplate the processing of each word."  Defs. Br. at 17.

3       Defendants submit a 1992 article, "Progress in the Application of Natural Language Processing to

4       Information Retrieval Tasks," stating that "[f]or [natural language processing], lexical processing

5       operates at the single word level and involves identifying words and determining their

6       grammatical classes or parts of speech so that higher levels  language analysis can take place."

7       Mead Decl. Ex. H (Dkt. No. 103-9).  Defendants also point to the specification's figure 5A, which

8       appears to depict processing on a word-by-word basis, and the following language from the

9       "Summary of the Invention" portion of the specification: "It is an object of this invention to

10      provide a new and improved natural language syntax processing method for separating incoming

11      natural language into each word's sentence role."  '468 patent at 20:12-15.

12              I agree with defendants that "lexically processing" as used in the claims is properly read to

13      require processing on a word-by-word basis.  WTI does not dispute that the 1992 article accurately

14      reflects the customary and ordinary meaning of "lexically processing" and offers no competing

15      evidence on the customary and ordinary meaning of the term.  *See* Opening Br. at 16-17; Reply

16      Br. at 11-12.  WTI contends that the prosecution history supports a broader reading of lexically

17      processing than the customary and ordinary meaning.  But the single prosecution statement WTI

18      relies on does not squarely address whether lexically processing must operate on a word-by-word

19      basis.  *See* '603 file at 33, 62, 82.  If anything, the prosecution statement appears to support

20      defendants' position, in that Budzinksi stated that "lexical processing accesses syntax usage data,

21      associated word sense numbers, and/or function codes of *a word* in [a] dictionary data base of the

22      present invention."  '603 file at 33, 62, 82 (emphasis added).

23              The specification also fails to support a broader reading of "lexically processing."  WTI

24      does not dispute that figure 5A and the "Summary of the Invention" language cited by defendants

25      supports defendants' narrow construction.  WTI cites its own portions of the specification, but I

26      agree with defendants that these portions do not establish a broader reading of the term.  First,

27      while the specification describes storing "idioms" in the "Dictionary," '468 patent at 5:06-09,

28      immediately thereafter the specification states that "Dictionary Look-Up Step looks up the syntax

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1   wordsets which *each input word* belongs to," *id.* at 5:09-12 (emphasis added).  WTI does not

2   dispute that this language indicates that the lexically processing step "would still need to process

3   each word in order to determine that the natural language contained an idiom."  Defs. Br. at 17-18.

4   Second, while the specification describes how "[w]ords formed with a verb base (e.g.,

5   'surprisingly') often imply a clause for complete interpretation," '468 patent at 5:61-63, WTI does

6   not explain how this shows that lexically processing operates other than on a word-by-word basis.

7   That one word can "imply a clause for complete interpretation" does not necessarily mean that the

8   invention can lexically process a complete clause without lexically processing each word in the

9   clause.  *See* Defs. Br. at 18 (making same point).  Finally, while the specification describes

10  "perform[ing] ellipsis processing to replace ellipted words, i.e., left out words, and then . . .

11  perform[ing] processing which determines if the replaced words are consistent with the context of

12  the conversation and stored experience and knowledge," '468 patent at 3:44-48, WTI again fails to

13  explain how the processing of additional, ellipted words means that lexically processing operates

14  other than on a word-by-word basis.

15  ### F.  "syntax usage data"

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '087 patent, claim 1, 17<br><br>'091 patent, claim 1, 12<br><br>'840 patent, claim 1, 15<br><br>'509 patent, claim 16<br><br>'603 patent, claim 9<br><br>'436 patent, claim 1<br><br>'468 patent, claim 1, 33 | Information indicating how a word or words can be used in relation to other words. | Data comprised of sets of words which can syntactically be used interchangeably in a natural language construction. | Defendants' construction. |

| Example Claims | |
|---|---|
| **'468 patent,** | A method of processing natural language, which comprises steps |

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| claim 1 | |
|---|---|
| | providing electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of <u>syntax usage data</u>, associated word sense numbers having associated state representation data and/or function codes, |
| | lexically processing said electronically encoded data to access said dictionary data base, |
| | providing a grammar specification, |
| | utilizing said <u>syntax usage data</u> which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage. |
| '603 patent, claim 1 | A method of processing natural language in an apparatus, which comprises steps utilizing a natural language processor to provide a data base of natural language with associated word sense numbers and/or function codes in memory associated with said apparatus, |
| | associating additional data with said word sense numbers and/or function codes associated with said data base of natural language in memory associated with said apparatus, |
| | indexing said data base of natural language with respect to word sense numbers and/or function codes with said apparatus, |
| | storing said index in memory associated with said apparatus, |
| | providing electronically encoded data which is representative of natural language in memory associated with said apparatus, |
| | providing a dictionary data base in memory associated with said apparatus wherein said dictionary data base contains a plurality of entries which are comprised of one or more of <u>syntax usage data</u>, associated word sense numbers, and/or function codes, |
| | lexically processing said electronically encoded data to access said dictionary data base with said apparatus, |
| | providing a grammar specification in memory associated with said apparatus, |
| | utilizing said natural language words which are associated with said electronically encoded data and said associated data which are from said dictionary data base entries with reference to said grammar specification to select word sense numbers and/or function codes with said apparatus, |
| | utilizing said index to said data base of natural language to access word sense numbers and/or function codes with said associated additional data to match or partially match said selected word sense numbers and/or function codes associated with said natural language which is associated with said electronically encoded data with said apparatus. |

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| '436 patent, claim 1 | A method of processing natural language in an apparatus, which comprises steps: |
|---|---|
| | providing natural language which is processed by said apparatus to provide electronically encoded data which is representative of said natural language, |
| | providing a dictionary data base in memory associated with said apparatus wherein said dictionary data base contains a plurality of entries which are comprised of one or more of <u>syntax usage data</u>, associated word sense numbers with associated state representation data, and/or function codes, |
| | lexically processing said electronically encoded data to access said dictionary data base with said apparatus, |
| | providing a natural language plausibility and expectedness processor in said apparatus, |
| | utilizing said natural language plausibility and expectedness processor to initiate accessing entries of said dictionary data base which are associated with words of said natural language. |

The parties do not dispute that syntax means "the way in which words are put together to form phrases, clauses, or sentences," *see* Defs. Br. at 20 n.5; Reply Br. at 12-13, but disagree on the exact form of the syntax usage data recited in the asserted claims. Defendants contend that both the prosecution history and the specification support their construction. Defs. Br. at 19-22. During prosecution, Budzinski explained how his claimed "syntax usage data" is different from the data disclosed in Vanderwende:

> The next paragraph of claim 7 of the present invention is: "providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, and/or function codes." The dictionary data base entry of the present invention is described at page 49, line 33 to page 51, line 7, and illustrated in Fig. 3a. ***The syntax usage data is comprised of syntax wordsets. A syntax wordset is a set of words which can syntactically be used interchangeably in a natural language construction.*** A word's syntax wordset can be used by the parser to determine the phrase the word belongs to, and the relation of the word to other words in the phrase of incoming natural language to an embodiment of the present invention. A word's syntax wordset can also be used to generate outgoing natural language from an embodiment of the present invention. The syntax data can be advantageously utilized to generate correct outgoing natural language. For example, certain words have preferred orderings, e.g. "sweet enough" and "sufficiently sweet," but not "enough sweet" and "sweet sufficiently." Vanderwende utilizes syntactic rules for parsing incoming text, but not for outgoing text, and ***the Vanderwende knowledge base of semantic relations does not contain syntax usage data.***

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1    '509 file at 29 (emphasis added).  Defendants state that their construction simply combines

2    Budzinski's definition of "syntax usage data" as "comprised of syntax wordsets" with his

3    definition of "syntax wordset."  Defs. Br. at 19.  That definition of syntax wordset – i.e., "a set of

4    words which can syntactically be used interchangeably in a natural language construction" –

5    appears both in the prosecution history and also in the "Preferred Embodiment" section of the

6    specification.  *See* '468 patent at 28:20-22.  Defendants also cite to a number of other portions of

7    the specification that refer to "wordsets" or "syntax wordsets."  *See* Defs. Br. at 20 (citing '468

8    patent at 5:10-12; 28:04-07, 25-27; 32:33-46).

9            WTI counters that the specification supports its broader construction of "syntax usage

10   data," and that the specification's description of wordsets and syntax wordsets is a "classic

11   example of a preferred embodiment."  Opening Br. at 19.  With respect to the prosecution history,

12   WTI contends that Budzinski distinguished Vanderwende not on the ground that his invention

13   employs syntax usage data in the form of wordsets, but rather because Vanderwende does not

14   disclose syntax usage information at all.  *Id.* at 19-20; *see also* Reply Br. at 12-13.  WTI asserts

15   that a person of ordinary skill in the art would appreciate that Budzinski described the preferred

16   embodiment "merely as helpful background, not as a limitation of the claims."  Opening Br. at 20.

17          I agree with defendants' construction.  Budzinski's description of the claimed "syntax

18   usage data" during prosecution is not reasonably characterized as mere "helpful background," as

19   WTI contends.  *Id.*  Budzinski gave the description in the context of distinguishing Vanderwende

20   and used language strongly indicating that his purpose was to define the term, i.e., "[t]he syntax

21   usage data is comprised of . . ." and "[a] syntax wordset is a . . ."  Further, WTI fails to identify

22   any portion of the specification that supports a construction of "syntax usage data" that does not

23   require wordsets.  To the contrary, nearly every portion of the specification that WTI cites refers to

24   "wordsets" or "syntax wordsets."  *See* '468 patent at 28:22-25 ("A word's *syntax wordset* is used

25   by the parser to determine the parser to determine the phrase the word belongs to, and the relation

26   of the word to other words in the phrase.") (emphasis added); *id.* at 5:07-19 ("The Dictionary 20

27   stores words, and idioms which each have associated *syntax wordsets* . . . Dictionary Look-Up

28   Step 14 looks up the *syntax wordsets* which each input word belongs to and passes this

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1    information to the Parsing Step 16.”) (emphasis added).  WTI does not explain how these portions

2    support its construction, except to state that the portions show that the asserted patents use

3    “syntax” in its “ordinary sense.”  Opening Br. at 18.  But how the asserted patents use the term

4    “syntax” is a different issue from how they use the term “syntax usage data.”  With respect to the

5    latter issue, WTI identifies nothing in the asserted patents or elsewhere that provides meaningful

6    support for its position.

7    **G.    “access conditions”**

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '509 patent, claim 9<br><br>'603 patent, claim 14<br><br>'468 patent, claim 12, 31 | Conditions that determine the nodes on a path that are accessible. | Values or data on paths in a directed graph of experience and knowledge which are met in order for purpose relations common to clause implying word sense numbers to be valid, and which determine a feasible purpose path when the access conditions of nodes on a path are met. | None. |

| | Claims |
|---|---|
| **'468 patent, claim 12** | 12. A method of processing as defined in claim 1, which comprises steps<br><br>providing an experience and knowledge data base wherein said experience and knowledge data base is comprised of directed graphs comprised of nodes with associated clause implying word sense numbers organized into paths of said nodes such that said nodes have <u>access conditions</u> which determine the zero or more next said nodes on the zero or more said paths that are accessible, said nodes having optional related data,<br><br>purpose path identification processing to find zero or more said paths between said nodes with reference to said experience and knowledge data base such that said <u>access conditions</u> of said nodes on said found paths are met.<br><br>1. A method of processing natural language, which comprises steps<br>providing electronically encoded data which is representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data and/or function codes,<br><br>lexically processing said electronically encoded data to access said dictionary data base, |

| | |
|---|---|
| | providing a grammar specification, |
| | utilizing said syntax usage data which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage. |
| '468 patent, claim 31 | A method of processing experience and knowledge, which comprises steps |
| | providing said experience and knowledge data base which is comprised of directed graphs comprised of nodes with associated clause implying word sense numbers organized into paths of said nodes such that said nodes have <u>access conditions</u> which determine the zero or more next said nodes on the zero or more said paths that are accessible, |
| | purpose relation path identification processing to find zero or more said paths between said nodes with reference to said experience and knowledge data base such that said <u>access conditions</u> of said nodes on said found paths are met. |
| '509 patent claim 9 | A method of processing natural language in an apparatus, which comprises steps |
| | providing in memory associated with said apparatus an experience and knowledge data base which is comprised of directed graphs comprised of nodes with associated clause implying word sense numbers organized into paths of said nodes such that said nodes have <u>access conditions</u> which determine zero or more next said nodes on zero or more said paths that are accessible, |
| | utilizing a natural language processor to provide natural language with associated clause implying word sense numbers in memory associated with said apparatus, |
| | purpose relation path identification processing with said apparatus to find zero or more said paths from said nodes associated with said clause implying word sense numbers associated with said natural language with reference to said experience and knowledge data base such that said <u>access conditions</u> of said nodes on said found paths are met, |
| | providing criteria for selecting said found experience and knowledge paths in memory associated with said apparatus, |
| | utilizing said criteria to select one or more of said found paths with said apparatus. |

In support of their construction of "access conditions," defendants rely on two statements made by Budzinski during prosecution of the '509 and '603 patents. Defs. Br. at 22. During prosecution of the '509 patent, Budzinski stated that

> [i]n the present invention, a purpose relation includes any subject or action common to the related clause implying word sense numbers in the purpose relation, and these clause implying word sense numbers have associated nodes with *access conditions* on paths in a directed graph of experience and knowledge. These *access conditions* on a path are met for such purpose relations to be valid.

'509 file at 38-39 (emphasis added).  Similarly, during prosecution of the '603 patent, Budizski

31

1    described access conditions as follows:

2              The directed graph storing experience and knowledge has nodes
             which have ***access conditions*** which determine a feasible purpose
3            path when the ***access conditions*** of nodes on a path are met.

4    '603 file at 26 (emphasis added).  Defendants contend that their construction reflects these

5    descriptions.  Defs. Br. at 22.

6         WTI agrees that access conditions "determine accessible or feasible paths in a directed

7    graph," Reply Br. at 13, and that "a directed graph is made up of nodes . . . and paths between

8    nodes representing relationships . . . between clauses," Opening Br. at 21.  WTI asserts not that

9    defendants' construction is inaccurate, but that it is overcomplicated and redundant, in that it

10   "repeats terms such as 'directed graph' and 'experience and knowledge' which are already recited

11   in claims 12 and 31 [of the '468 patent]." *Id.*  In support of its construction, WTI points to the

12   statement in the abstract of '087, '091, '840, '509, and '603 patents that "[n]odes in the directed

13   graph have access conditions which determine if a node is accessible on a path."  Opening Br. at

14   21.  WTI asserts that its construction captures this meaning. *Id.*

15        I find that neither party's construction is appropriate at this juncture.  The parties do not

16   appear to dispute how the meaning of access conditions impacts the scope of the relevant asserted

17   claims; their only dispute appears to be how best to convey that meaning through claim

18   construction.  That is, the parties appear to agree that access conditions determine the accessibility

19   of nodes on paths in directed graphs, thereby determining feasible paths between nodes.  But this

20   is essentially how the claims themselves describe access conditions; each of the relevant asserted

21   claims discloses "directed graphs" comprised in part of "access conditions which determine [the]

22   zero or more next said nodes on [the] zero or more said paths that are accessible."[6]  Given the

23   absence of a coherent dispute over claim scope, and the clarifying language already present in the

24   relevant asserted claims, I decline to adopt either party's construction at this time.

25        **H.    "dictionary data base"**

26   | Claims | WTI's Construction | Defendants' | Court's Construction |
     |---|---|---|---|

27   _____

     [6] The relevant asserted claims from the '468 patent include the bracketed "the"s; the relevant
28   asserted claims from the '509 and '603 patents omit them.

| | | Construction | |
|---|---|---|---|
| '087 patent, claim 1, 17<br><br>'091 patent, claim 1, 12<br><br>'840 patent, claim 1, 5, 15, 16<br><br>'509 patent, claim 16<br><br>'603 patent, claim 9<br><br>'436 patent, claim 1, 11<br><br>'468 patent, claim 1, 33 | None.<br><br>OR<br><br>A collection of data entities representing words or word meanings. | A collection of data entities representing words or word meanings which, at a minimum, contains (1) the state representation data associated with a word sense number, and (2) the function selection process of a function code for a function word.[7] | WTI's alternative construction:<br><br>A collection of data entities representing words or word meanings. |

| | Example Claims |
|---|---|
| **'468 patent, claim 1** | A method of processing natural language, which comprises steps<br>providing electronically encoded data which is representative of said natural language,<br><br>providing a <u>dictionary data base</u> wherein said <u>dictionary data base</u> contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data and/or function codes,<br><br>lexically processing said electronically encoded data to access said <u>dictionary data base</u>, providing a grammar specification,<br><br>utilizing said syntax usage data which are from entries of said <u>dictionary data base</u> and which are associated with words of said natural language with reference to said grammar specification to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage. |
| **'087 patent, claim 1** | A method of processing natural language, which comprises steps<br><br>providing electronically encoded data which is representative of said natural language,<br><br>providing a <u>dictionary data base</u> wherein said <u>dictionary data base</u> contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, |

---

[7] Defendants first proposed this construction at the hearing.  Hearing Tr. at 40-44.  After the hearing, I granted WTI's request to submit supplemental briefing regarding the construction, and both parties submitted supplemental briefs.  Dkt. Nos. 118, 119, 120.

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| | | |
|---|---|---|
| | | lexically processing said electronically encoded data to access said <u>dictionary data base</u>, |
| | | utilizing said syntax usage data and said word sense numbers which are from entries of said <u>dictionary data base</u> and which are associated with words of said natural language to access said state representation data. |
| **'091 patent, claim 1** | | A method of processing natural language, which comprises steps providing electronically encoded data which is representative of said natural language, |
| | | providing a <u>dictionary data base</u> wherein said <u>dictionary data base</u> contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data, and/or function codes, |
| | | lexically processing said electronically encoded data to access said <u>dictionary data base</u>, providing a grammar specification, |
| | | providing a data base of requirements such that said requirements must be met by said associated state representation data of said word sense numbers for said word sense numbers to be selected, |
| | | utilizing said syntax usage data which are from entries of said <u>dictionary data base</u> and which are associated with words of said natural language with reference to said grammar specification to select word sense numbers associated with said natural language words such that said associated state representation data of said associated word sense numbers meet said requirements for selecting said associated word sense numbers. |

In support of their construction of "dictionary data base," defendants again rely on

prosecution statements by Budzinski. Defs. Br. at 22-24; *see also* Dkt. No. 120. They highlight

that Budzinski distinguished Vanderwende by stating that

> Vandervende utilizes syntactic rules for parsing incoming text, but not outgoing text, and the Vandervende knowledge base does not contain syntax usage data of the present invention. ***The dictionary data base of the present invention is utilized to locate the state representation data associated with a word sense number.*** The state representation data associated with word sense numbers includes requirements and access conditions which are utilized for selecting a word sense number which has the intended meaning of a word contained in natural language. Vanderwende . . . does teach how to construct a lexical data base of semantic relations of text associated with text headwords with optionally appended dictionary definition numbers. A semantic relation of Vanderwende is an arrangement of text, and the Vanderwende lexical data base is composed of organized units of text wherein these units are semantic relations of arranged text. The semantic relations of the Vanderwende knowledge base do not contain requirements and access conditions. Thus, the Vanderwende knowledge base cannot be utilized to determine valid semantic relations for natural language, but rather the knowledge base can be used to find possible semantic relations which may or may not be true for the current natural language because even if the semantic relations are sense

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disambiguated in the data base, the semantic relations are only possibly true. Thus, Vanderwende does not teach how to select valid meanings for natural language. ***The dictionary data base of the present invention is utilized to locate the function selection process of a function code for a function word.*** The function selection process is needed to find the intended meaning of natural language. For example, the valid referent of a usage of 'it' in natural language is needed to determine the intended meaning of the clause containing 'it,' and Vanderwende does not teach how to select valid meanings for natural language . . . Vanderwende does not teach how to perform function word processing.

'509 file at 33-34 (emphasis added). Defendants contend that their construction "reflects verbatim these two distinguishing features of the dictionary data base," i.e., that it is "utilized to locate" both (1) "the state representation data associated with a word sense number," and (2) "the function selection process of a function code for a function word." Defs. Br. at 23.

According to WTI, the term "dictionary data base" is "well known in the art and does not require construction." Opening Br. at 22. Alternatively, it contends that a "simple elucidation of the ordinary meaning is sufficient," which is what it contends its construction provides. *Id.* WTI criticizes defendants' construction on the ground that the prosecution statements highlighted by defendants are aimed at how the entries of a dictionary data base are used, not what a dictionary data base is. Reply Br. at 14-15. WTI also argues that defendants' construction would effectively rewrite the claims from requiring a dictionary data based comprised of "syntax usage data, associated word sense numbers having associated state representation data, *and/or* function codes," to requiring a dictionary database comprised of *both* associated state representation data and function codes. Dkt. No. 119 at 2.

I agree with WTI's criticisms of defendants' construction and adopt WTI's alternative construction of dictionary data base. As WTI points out, the prosecution statements highlighted by defendants appear to be directed at how the entries of a dictionary data base are used, not what a dictionary data base is, and defendants' reading of the statements is at odds with the actual language of the claims. Apart from those prosecution statements, defendants offer no basis for their construction, and identify nothing in the claims or specification that supports it. *See* Defs. Br. at 22-24; Dkt. No. 120. Absent more support for defendants' construction, I adopt WTI's.

## I.      "context data base"

| Claims | WTI's Construction | Defendants' Construction | Court's Construction |
|---|---|---|---|
| '840 patent, claims 1, 2, 3, 5, 15, 16<br><br>'509 patent, claims 10, 16<br><br>'436 patent, claims 7, 14 | A collection of data entities containing context information. | A database separate from the other knowledge bases that stores semantic relations of text which have recently been extracted from a conversation or other natural language. | Defendants' construction, slightly modified:<br><br>A database ~~separate from the other knowledge bases~~ that stores semantic relations of text which have recently been extracted from a conversation or other natural language. |

| Example Claims | |
|---|---|
| **'509 patent, claim 10** | 10. A method of processing as defined in claim 9, which comprises steps<br><br>providing a <u>context data base</u> wherein said <u>context data base</u> contains a plurality of entries which are comprised of one or more of clause implying word sense numbers having associated state representation data including associated experience and knowledge paths,<br><br>selecting experience and knowledge paths associated with said clause implying word sense numbers associated with said natural language such that said experience and knowledge paths associated with said clause implying word sense numbers associated with said natural language have accessable paths to said experience and knowledge paths associated with said clause implying word sense numbers from said <u>context data base</u> entries.<br><br>9. A method of processing natural language in an apparatus, which comprises steps<br><br>providing in memory associated with said apparatus an experience and knowledge data base which is comprised of directed graphs comprised of nodes with associated clause implying word sense numbers organized into paths of said nodes such that said nodes have access conditions which determine zero or more next said nodes on zero or more said paths that are accessible,<br><br>utilizing a natural language processor to provide natural language with associated clause implying word sense numbers in memory associated with said apparatus,<br><br>purpose relation path identification processing with said apparatus to find zero or more said paths from said nodes associated with said clause implying word sense numbers associated with said natural language with reference to said experience and knowledge data base such that said access conditions of said nodes on said found paths are met,<br><br>providing criteria for selecting said found experience and knowledge paths in memory associated with said apparatus, |

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| | | utilizing said criteria to select one or more of said found paths with said apparatus. |
|---|---|---|
| | **'840 patent, claim 15** | A method of processing natural language, which comprises steps<br><br>providing electronically encoded data which are representative of said natural language,<br><br>providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated clause implying word sense numbers having associated state representation data,<br><br>lexically processing said electronically encoded data to access said dictionary data base,<br><br>providing a grammar specification,<br><br>providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of clause implying word sense numbers having associated state representation data,<br><br>utilizing one or more of said syntax usage data and said clause implying word sense numbers which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification and with reference to said context data base to select clause implying word sense numbers associated with said natural language words. |
| | **'840 patent, claim 16** | A method of processing as defined in claim 15, which comprises steps<br><br>providing an experience and knowledge data base which is comprised of directed graphs comprised of nodes having associated clause implying word sense numbers organized into paths of said nodes wherein said paths have associated identifiers,<br><br>providing a context data base wherein said context data base contains a plurality of entries which are comprised of one or more of clause implying word sense numbers having associated state representation data including associated experience and knowledge data base path identifiers,<br><br>selecting experience and knowledge data base paths for said clause implying word sense numbers which are from said dictionary data base and which are associated with said natural language words such that said experience and knowledge data base path identifiers match or partially match said experience and knowledge data base path identifiers which are associated with said clause implying word sense numbers from said context data base entries and said clause implying word sense numbers having said associated natural language words match or partially match one or more of said clause implying word sense numbers which are on said experience and knowledge data base paths having said experience and knowledge data base path identifiers which match or partially match said experience and knowledge data base path identifiers which are associated with said clause implying word sense numbers from said context data base entries. |

Defendants again rely on Budzinki's statements during prosecution to support their

construction.  Defs. Br. at 24-25.  They point to the same introductory remark discussed above

1    (i.e., "the terms of the present invention have significantly different descriptions in the

2    specification") as well as the following portions of the '509 file:

> The context data base of the present invention is stored in Context Memory 120. Context Memory 120 is updated after each clause implying word sense has been selected including function word processing. The state representation of the clause is stored including the state representation of nouns, the word sense numbers of clauses, and the purpose relations of the current natural language clause to the other clauses in the conversation or other natural language including the purpose paths.
>
> [ . . . ]
>
> ***Context Memory 120 contains information from a conversation or other natural language and is separate from the other knowledge data bases of the present invention including the state representation memories and the experience and knowledge memory***. Context Memory 120 contains pointers to existing state representations, and experience and knowledge in the corresponding memory. New state representations and new experience and knowledge are also stored in Context Memory 120. Also, the stated and implied relations among words in the clause are stored in Context Memory 120. Having a context data base for natural language not utilized to build the knowledge bases of the present invention is advantageous because the state representation, including word sense numbers and purpose relations of clause implying word senses, of the current natural language is often related to previous natural language of the conversation or other natural language.
>
> [ . . . ]
>
> Vanderwende uses "relational context" which humans use to understand natural language . . . , and Vanderwende utilizes "contexts" of definitions . . . which are definitions which contain a particular word like "flower" . . . and which are used to find semantic relations of the particular word. ***In contrast to the present invention, Vanderwende only has semantic relations stored in the Vanderwende knowledge base, and this knowledge base is the result of all text which has been processed to extract semantic relations. Vanderwende does not teach how to build and utilize a separate knowledge base to store semantic relations of text which have recently been extracted***. Vanderwende does not teach how to build a context data base of purpose relations of the present invention between clause implying word sense numbers which are valid.
>
> [ . . . ]
>
> Also, Vanderwende does not teach how to build a context data base which includes word sense numbers having associated state representation data, and/or function codes. ***A context data base separate from other data bases can be utilized to generate outgoing natural language which contains the words and phrases expressed***

*in the conversation or other natural language. Vanderwende does*
*not teach how to create such a context data base.*

'509 file at 22-23, 37. Defendants contend that their construction of context data base – which

requires both that the context data base be "separate," and that it store information "recently

extracted from a conversation or other natural language" –"capture[s] the meaning [Budzinski]

explained when acting as his own lexicographer" during prosecution. Defs. Br. at 24-25.

WTI appears to dispute only the "separate" aspect of defendants' construction. *See*

Opening Br. at 23-24; Reply Br. at 15 ("The essential dispute is whether the context database

must be separate from the dictionary data base of the claims."). According to WTI, the key

distinction between Vanderwende and the claimed invention is not that context information in the

claimed invention is "separately stored," but that the "so-called context information [in

Vanderwende] is not really contextual at all." Opening Br. at 24. That is, "instead of having

'recently been extracted' from related expressions, [the context information in Vanderwende] is

'the result of all text which has been processed to extract semantic relations.'" *Id.* (quoting '509

file at 23). WTI contends that, "[t]aken as a whole, [Budzinki's] remarks would not lead a person

of ordinary skill to conclude the context information must necessarily be stored separately."

Reply Br. at 15.

I agree with WTI that the prosecution history does not support a construction of "context

data base" that requires a separate structure for this element. It is not all clear from the

prosecution history that Budzinski was using the word "separate" to mean separate in a structural

sense, as defendants' construction appears to require. The rest of defendants' construction,

however, is both supported by the prosecution history and not meaningfully disputed by WTI,

and I adopt it as the Court's.

## III.   DISPUTED TERMS INVOLVING 35 U.S.C. § 112 ¶ 6

The parties dispute whether the final paragraph of claim 1 of the '468 patent is a step-

plus-function limitation that is governed by, and indefinite under, 35 U.S.C. § 112 ¶ 6. That

claim states in whole, with emphasis added to the disputed paragraph:

| '468 patent, claim 1 | A method of processing natural language, which comprises steps |
|---|---|
| | providing electronically encoded data which is representative of said natural language, |

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| | providing a dictionary data base wherein said dictionary data base contains a plurality of entries which are comprised of one or more of syntax usage data, associated word sense numbers having associated state representation data and/or function codes,<br><br>lexically processing said electronically encoded data to access said dictionary data base,<br><br>providing a grammar specification,<br><br><u>utilizing said syntax usage data which are from entries of said dictionary data base and which are associated with words of said natural language with reference to said grammar specification to produce output data representative of a grammatical parse of said natural language, said output data including selected syntax usage.</u> |
|---|---|

Section 112 ¶ 6 provides that "[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112 ¶ 6.  In other words, the provision applies where a claim recites "a means or step for performing a function," but no corresponding "structure, material, or acts." *Id.*  The terms "structure" and "material" are generally associated with "means," while the term "acts" is generally associated with "step for." *Seal-Flex, Inc. v. Athletic Track & Court Const.*, 172 F.3d 836, 848 (Fed. Cir. 1999).  Thus, "a claim element deserves step-plus-function treatment when expressed as a step for performing a specified function without the recital of acts in support thereof." *Id.* (internal quotation marks and emphasis omitted).

Where a patentee uses "step for" in a claim limitation, there is a rebuttable presumption that the limitation is a step-plus-function limitation governed by section 112 ¶ 6. *See Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002); *Seal-Flex*, 172 F.3d at 849.  Conversely, where the patentee does not use "step for," the limitation may only be construed as a step-plus-function limitation upon a "showing that the limitation contains nothing that can be construed as an act." *Masco*, 303 F.3d at 1327.  Whether language in a method claim represents an act or a function can be hard to decipher; "method claim elements often recite phrases susceptible to interpretation as either a function or as an act for performing a function," and "[b]oth acts and functions are often stated using verbs ending in 'ing.'" *Seal-Flex*, 172 F.3d at 849.  In general,

1    however, the function of a method claim limitation "corresponds to *what* that element ultimately

2    accomplishes in relationship to what the other elements of the claim and the claim as a whole

3    accomplish," whereas "acts correspond to *how* the function is accomplished." *Id.* at 849-50

4    (emphasis in original).

5              Here, the "utilizing said syntax usage data" limitation in claim 1 of the '468 patent does

6    not use "step for." Accordingly, the burden is on defendants to show that "the limitation contains

7    nothing that can be construed as an act." *Masco*, 303 F.3d at 1327.

8              Defendants have not made this showing. They contend that the latter part of the limitation

9    describes a function – i.e., "to produce output data representative of a grammatical parse of said

10   natural language, said output data including selected syntax usage" – but that there is no recitation

11   of acts to accomplish this function. Defendants assert that the first part of the limitation – i.e.,

12   "utilizing said syntax usage data which are from entries of said dictionary data base and which are

13   associated with words of said natural language with reference to said grammar specification" – "is

14   not an act, and to extent that it could be considered one, it is not sufficient to show how the

15   function is accomplished." Defs. Br. at 16. According to defendants, the first part of the

16   limitation is "not sufficient" to serve as an act because "[t]here is no statement of how to use the

17   syntax usage data or how to reference the grammar specification." *Id.*

18             The problem with this argument is that defendants do not explain how the first part of the

19   limitation could be reasonably construed as anything but an act, and it is not clear to me how it

20   could be. While "[b]oth acts and functions are often stated using verbs ending in 'ing,'" *Seal-*

21   *Flex*, 172 F.3d at 849, the phrase "utilizing said syntax usage data which are from entries of said

22   dictionary data base and which are associated with words of said natural language with reference

23   to said grammar specification" reads to me like an act. That is, the phrase, explains "*how* [a]

24   function is accomplished," *id.* at 849-50, the function in this case being "produc[ing] output data

25   representative of a grammatical parse of said natural language, said output data including selected

26   syntax usage." Defendants make no argument to the contrary; they simply assert without

27   explanation that the limitation "is not an act." *See* Defs. Br. at 16.

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1    Defendants' assertion that the first part of the limitation lacks sufficient detail to serve as

2 an act is also unconvincing. *See id.* Defendants cite no authority indicating that this sort of detail

3 is required. In the one case cited by either party on this issue, *Neurografix v. Regents of Univ. of*

4 *California*, No. 11-cv-07591-MRP, 2012 WL 8281409 (C.D. Cal. June 13, 2012), the accused

5 infringer argued that that the term "processing" could not serve as an act "because the mere word

6 'processing' provides no information regarding how to accomplish the claimed function." *Id.* at

7 *6. The district court disagreed, explaining that

> [t]here is a subtle but critical difference between how a function is
> accomplished and how an act accomplishes a function. The former
> is an identify-the-act question, appropriate for deciding if [section
> 112] ¶ 6 applies in the first instance. The latter is an analyze-the-act
> question, appropriate for determining if a claim element is valid
> under the enablement, written description, and definiteness inquiries
> under [section] 112 ¶¶ 1-2 . . . Identifying an act to see if [section
> 112] ¶ 6 applies (step-plus-function identification) is an inherently
> less searching inquiry than analyzing the same act under [section
> 112] ¶¶ 1-2 (enablement, written description, definiteness) . . . . The
> Federal Circuit has not, to this Court's knowledge, analyzed an act
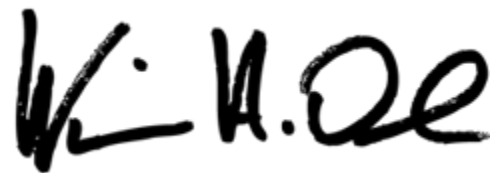> past the point of identification to determine [section 112] ¶ 6
> applicability.

*Id.* at *6-7. In the absence of any authority to the contrary, I find *Nuerografix* persuasive and

follow it here. Defendants' attack on the clarity of the act recited in the first part of the "utilizing

said syntax usage data" limitation does not justify applying section 112 ¶ 6.

## CONCLUSION

For the foregoing reasons, the claim terms are construed as stated above.

**IT IS SO ORDERED**.

Dated: July 12, 2016

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WILLIAM H. ORRICK
United States District Judge

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